Joint Precision Approach And Landing System (JPALS)

JPALS LOGISTICS CONCEPTS AND PLANNING

Worth Mizell AIR-3.2.4
Assistant Program Manager for Logistics

Mr. J. Wells, ESC/GAL

Mr. A. Seamans
PM AME, Redstone Arsenal

SCOPE

- Maintenance concepts
- Support strategies
- Technical Data
- Performance Based Logistics support approaches
- Where industry can assist

MAINTENANCE CONCEPTS

- Driven by operational availability Ao (KPP) - **99.7%**
- Objective - no critical failures that impact Ao during expected technology life
- Our focus is on a highly reliable solution with least amount of downtime
- Possible strategies to be considered include
  - maintenance performed during non-use periods
  - maintenance accomplished during system use without loss of adequate performance or personnel harm
  - design or maintenance suggestions

MAINTENANCE CONCEPTS (cont)

- Common ground maintenance philosophy across land based and sea based users
- Ground system requires Built In Test (BIT) system health monitoring, diagnostics, and Class V IETMs
- Desire system prognostics, if feasible
- DoD two levels of maintenance - Organizational to Depot
- Avionics maintenance is aligned to host system performance demands

MAINTENANCE CONCEPTS (cont)

- Must employ corrosion resistant technology especially in the tactical and above deck sea environments
- Maintenance must be absorbed within existing or planned workforce and skills
- Performance tracking is required across users

SUPPORT STRATEGIES

- Plan for a single in-service support source of engineering, logistics and software for all users - Air Force, Army, Coast Guard, Marines, Navy, and International clients
- Take advantage of COTS and NDI hardware and software and proven suppliers
- Reduce current logistics footprint
- Minimize or eliminate need for external special support equipment. Use existing general purpose electronic test equipment.

SUPPORT STRATEGIES (cont)

- Cannot impose added tasking on pilot and should reduce workload
- Because of anticipated low failure rates embed proficiency training for the user
- End-to-end supply distribution with asset visibility (UID technology) required
- Embedded (hot swapping) that takes advantage of redundancy, high reliability design, and reliability derating is the preferred supply influence to design

TECHNICAL DATA

- Data in XML format
- Data rights will be driven by our final PBL strategy offset by industry interest in intellectual property
- SDD contractor must integrate within the JPALS digital e-collaboration environment characterized by seamless, interoperable, sharing of current information
- Solicit industry suggestions on how best to transition to the optimum IDE

PBL SUPPORT APPROACHES

Threshold:

Based on probable use of COTS and NDI, we anticipate establishing

- DoD PBL Integrator from the In Service Support source
- Uses partnerships with NDI and COTS Government and commercial sources to meet the 99.7% Ao requirement.
- Manage all in service support (engineering, logistics, and software). Metrics based on tracking system performance
    - Reliability
    - Mean Repair Time by User
    - Depot turn around time and cost
    - Parts transit time
    - In Service Support cost
    - Technology refresh requirements
    - DMSMS risk reduction
    - Incentives for reducing total ownership cost.

Strategy based on internal integration of NDI with COTS and need for an integrator across Government and commercial suppliers based on multiple support concepts

PBL SUPPORT APPROACHES

Objective:

- Based on the proposed solution and volatility of the technologies involved
- Tailored system level total commercial support for in service support throughout the system's anticipated technology life
- A performance warranty related to reliability, supply responsiveness, and in service support cost would apply.
- Required to provide total in service support, configuration control, and warranty of fielded systems until the next technology refresh or system replacement cycle.

The level of reliability and internal use of COTS and NDI influence the use of CLS.

WHERE INDUSTRY CAN HELP

1. Offer advice to validate the way ahead
   - continue market research responsiveness
   - propose alternative maintenance, support and PBL concepts
   - analyze achievable level of Built In Test (BIT) prognostics, background diagnostics, and system health monitoring
   - determine viability and level of system maintenance while in use without impact to safety or operational capability
   - assess future of highly reliable components, derating, redundancy options, and hot swapping
   - suggest COTS/NDI hardware/software solutions that accommodate inevitable changes in CONOPS, OPTEMPO, evolution, and avoids diminishing suppliers and unique material sources – DMSMS risk
   - review emerging technologies that could influence design and support
2. Consider bold or challenging reliability and support alternatives that address 10-years and out based on anticipated technology growth and quantum leaps